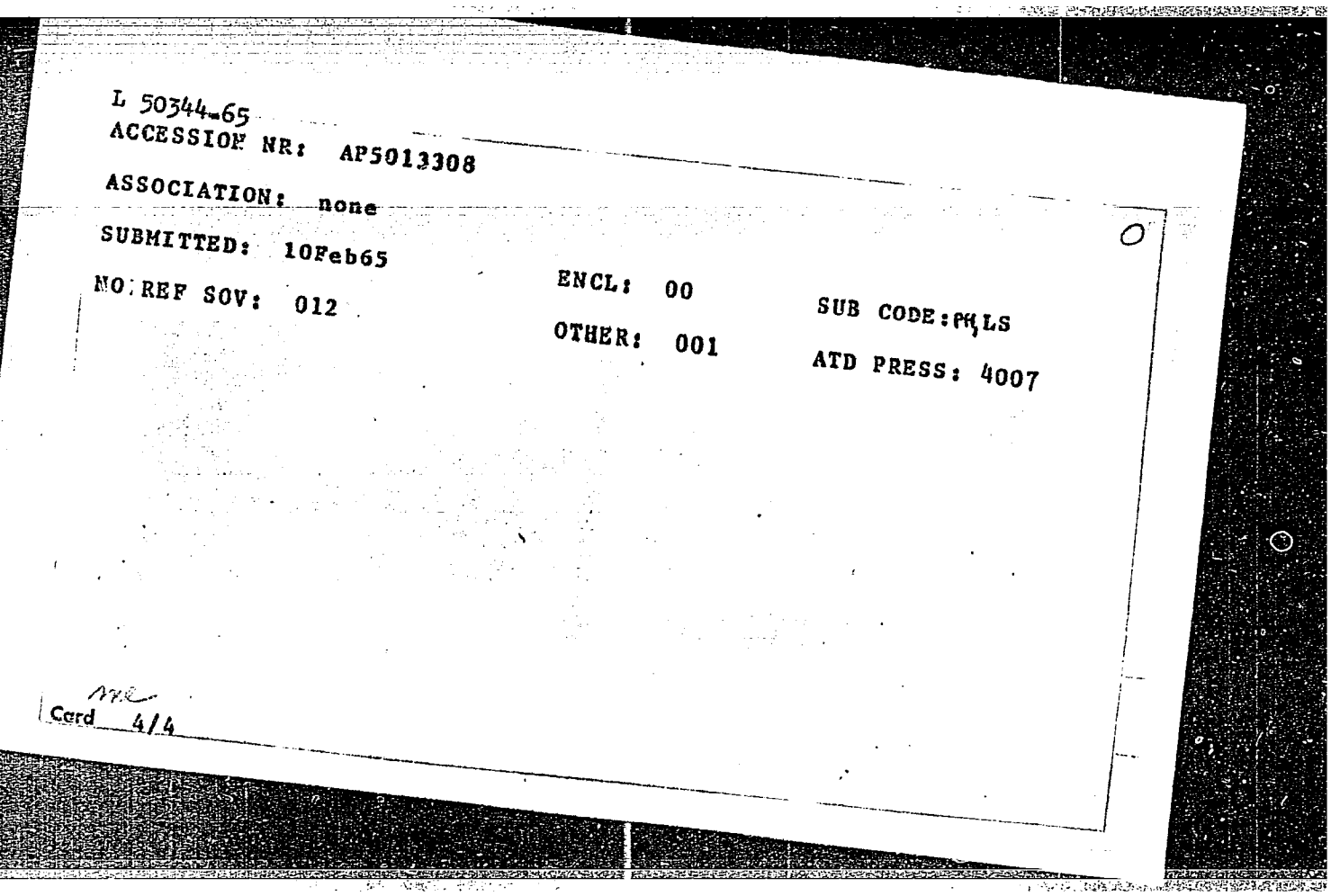
of the human organism has its limitations. Therefore, it will be important to further perfect methods of fixing cosmonauts to their working areas, to improve control panels, increasing their reliability, etc. A radical means of ameliorating the effects of weightlessness will be the construction of spacecraft with artificial gravity although there is the risk that Coriolis forces will deleteriously affect the working capacity of cosmonauts. One of the most important aspects of future space flights will be cosmonaut activity outside the spacecraft. It is suggested that a model space station be constructed and that the working capacity of personnel during parabolic flights be studied in preparation for tours of duty on permanent orbiting space stations which are likely to come into existence in the near future. On such space stations, crews would be trained for prolonged flights to other planets. Also, such space stations would provide the opportunity for more fully investigating the physiological effects of prolonged weightlessness on working capacity. It was concluded that higher standards should be established for the selection and examination of cosmonaut candidates for such future ventures.

[CD]



L 50344-65
ACCESSION NR: AP5013308

ASSOCIATION: none

SUBMITTED: 10Feb65

NO REF SOV: 012

ENCL: 00

OTHER: 001

SUB CODE: PH, LS

ATD PRESS: 4007

Card 4/4

L 39308-65 EEO-2/EWG(j)/FSF(h)/FSS-2/EWG(r)/EWT(1)/FS(v)-3/EEC(k)-2/EWG(v)/EWA(d)/EWG(a)-2/EWG(c) Po-4/Pe-5/Pg-4/Pac-4/Pa[illegible]/Pl-4
ACCESSION NR: AP5007071 TT/DD/RD/GM UR/0246/65/065/003/0386/0393

AUTHOR: Kuznetsov, O.N.; Lebedev, V.I.

TITLE: The problem of pseudopsychopathology under conditions of isolation with sensory deprivation

SOURCE: Zhurnal nevropatologii i psikhiatrii, v. 65, no. 3, 1965, 386-393

TOPIC TAGS: sensory deprivation, prolonged isolation, pseudopsychopathology, space flight

ABSTRACT: The authors discuss the results of experiments which they conducted on healthy people by subjecting them to prolonged isolation with sensory deprivation. The experiments took place in a soundproof chamber, which provided conditions of isolation from both sound and light. The nervous and mental stability of healthy subjects between 20 and 30 years of age was observed during a period of 10-15 days. Both before and after the experiment, the subjects underwent a thorough clinical-physiological examination. During isolation, they were required to perform complex tasks 4 times a day, and their reactions were observed by means of television and microphones placed in the test chamber. The symptoms which appeared are described in detail; they included errors in recognition of sounds due to insufficient information received from the stim-

Card 1/2

L 39308-65

ACCESSION NR: AP5007071

a mistaken feeling that another human being was present in the room, as a result of the skin's sensitivity to changes in pressure and temperature, confusion of dreams with reality, and auditory hallucinations. The authors conclude that these psychic changes are not pathological, but rather individual specific reactions to the conditions of prolonged isolation with sensory deprivation. They therefore call these changes pseudopsychopathological. [06]

ASSOCIATION: none

SUBMITTED: 12Sep64 ENCL: 00 SUB CODE: PH

NO REF SOV: 012 OTHER: 012 ATD PRESS: 3226

Card 2/2 JC

L 60073-65

ACCESSION NR: AP5018345 UR/0245/65/000/004/0098/0102

AUTHOR: Kuznetsov, O. N. (Moscow); Lebedev, V. I. (Moscow) 5 B

TITLE: Unregulated activity under conditions of prolonged isolation with sensory deprivation

SOURCE: Voprosy psikhologii, no. 4, 1965, 98-102

TOPIC TAGS: isolation chamber, sensory deprivation, psychological stability, unregulated activity

ABSTRACT: Tests were conducted to determine the nervous and psychological stability of individuals during a prolonged stay (10—15 days) in a soundproof isolation chamber. The character of the subjects' activity under such conditions was cited as the most complete indication of their psychological state. Healthy persons, 20—40 yr old, were used. Tests of working capacity, sleep, and the dynamics of physiological and psychic functions were conducted during different work-rest regimes (normal, reverse, and split regimes). Constant television and microphone monitoring was employed. Four hours of each day were devoted to a specified program, and the rest were left to the subject's choice of activity. This use of free time is the subject of the article. No books or games were provided, only colored pencils and paper,

Card 1/2

L 60073-65

ACCESSION NR: AP5018345

wood blocks, and a knife. Before the experiment, the subjects doubted their ability to use free time productively, especially since previous isolation experiments had permitted reading. At first the subjects were generally inactive. By the 2nd or 3rd day they were spending their free time in a variety of ways: they sang, whistled, wrote stories and poems, drew, and built structures and toys of wood and available materials. Extracts from a story and diary written by two of the subjects in the isolation chamber are given. It was concluded that the subjects adapted quite well to solitude. It is alleged that the general direction of activity in the isolation chamber toward the collective (as expressed in gifts made for friends) shows the superior psychology of the Soviet man as against "bourgeois individualistic psychology." Orig. art. has: 7 figures. [JS]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: LS, PH

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4058

Card 2/2

L 3925-66 ESS-2/EWT(1)/ES(w)-3 DD/RD

ACC NR: AP5024151 SOURCE CODE: UR/0216/65/000/005/0633/00

AUTHOR: Kas'yan, I. I.; Krasovskiy, A. S.; Kolosov, I. A.; Lomova, M. A.; Lebedev, V. I.; Yurov, B. N. 38 B

ORG: none

TITLE: Some physiological reactions of man to short-term weightlessness

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 5, 1965, 633-646

TOPIC TAGS: weightlessness, parabolic flight, human physiology, vestibular analyzer

ABSTRACT: Experiments were conducted with the participation of 31 men (aged 23—38 yr) representing various professions. The subjects were subdivided into 4 groups according to profession. Parabolic flights took place on a jet aircraft where weightlessness could be produced for 40—50 sec. Examinations took place before and after weightlessness and g-forces were 2.5—3.5 g with 2—3 min breaks between parabolas. In all, 120 flights representing 360 parabolas were flown. During the flights, the bioelectricity of the brain (EEG), heat biopotentials (EKG), respiration rate, blood composition, and vestibular reactions were studied. Results are given in Figs. 1 and 2 and Tables 1 and 2. It was concluded that periodic parabolic flights are useful in acquainting cosmonauts with short-term weightlessness and establishing criteria for selecting space-flight crews. No pathological alterations in physiological function or radical deviations in blood morphology or biochemistry were noted as a result of parabolic flights.

Card 1/5 UDC: 629.195:612.829.3

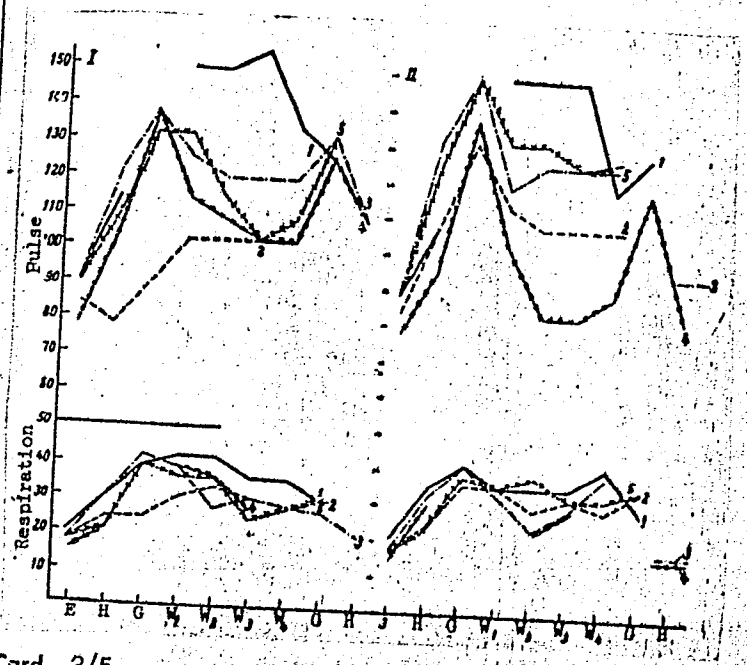


Fig. 1. Change in pulse and respiration rate of a subject at various stages of parabolic flight.

I - First parabola; II - third parabola; 1—5 - sequence of flights; E - Earth; H - horizontal flight; G - g-load; W - weightlessness (W_1 - 10 sec; W_2 - 20 sec; W_3 - 30 sec; W_4 - 40 sec).

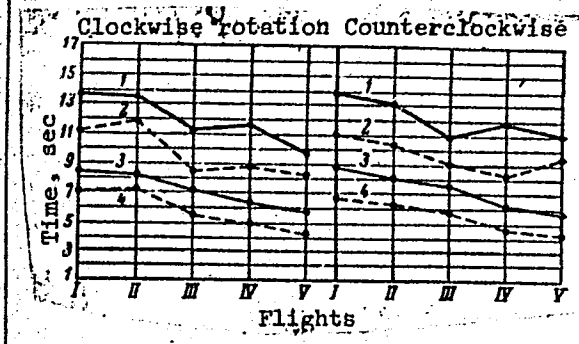


Fig. 2. Duration of postrotational nystagmus (1 - before, 2 - after flight) and counterrotation illusions (3 - before, 4 - after flight) during the performance of a Voyachek otolithic probe

Table 1. Changes in respiration rate at various stages of parabolic flight (compared with horizontal flight prior to weightlessness)

Change in resp. rate	G load	Weightlessness			G load	Horizontal flight
		I parab.	II parab.	III parab.		
Increase	11	9	7	—	8	—
No change	14	19	20	8	13	15
Decrease	3	3	4	—	2	11
No. investigated	28	31	31	8	23	26

Card 3/5

Table 2. Content of nonesterized fatty acids during parabolic flights (milliequivalents/liter)

Subject No.	1963 flight data	Before flight	After 1st flight	After 2nd flight	Comments
1	12	630	1550*	—	1. No flight before first test
	23	380	660*	660*	
	12	200	1390*	—	"
	16	—	270	260	2. First test after normal flight
2	17	—	220	310*	3. Flight before first test
	24	320	380*	—	4. No flight before first test
	16	—	290	260*	5. 3 flights before first test
3	23	260	120*	—	6. No flights before first test
	24	—	320	430*	7. 1 flight before first test
4	17	240	250*	—	8. No flights before first test
	26	200	270*	430*	"
	17	440	550*	470	"
5	23	200	320*		"
	24	—	320	760*	9. First test after normal flight
	17	—	440*	220	"
6	23	370	530*	—	10. No flights before first test
7	26	—	320	300*	11. First test after normal flight

* Flights simulating weightlessness

Card 4/5

L 3925-66
ACC NR: AP5024151

After the first exposure to parabolic flight, it was common for the concentration of nonesterized fatty acids to increase. Criteria indicating sufficient stability to short-term weightlessness are: insignificant changes in pulse rate relative to normal values during weightlessness, abbreviated illusions of counterrotation and postrotational nystagmus after a series of parabolic flights, and the absence of unfavorable sensory and vestibular autonomic reactions characterized by spatial illusions, giddiness, or nausea. Orig. art. has: 5 tables and 4 figures. [CD]

SUB CODE: LS/ SUBM DATE: 27May65/ ORIG REF: 024/ OTH REF: 013/ ATD PRESS: 4120

Card 5/5

YUGANOV, Ye.M.; GORSHKOV, A.I.; KAS'YAN, I.I.; BRYANOV, I.I.; KOLOSOV, I.A.; KOPANEV, V.I.; LEBEDEV, V.I.; POPOV, N.I.; SOLODOVNIK, F.A.

Vestibular reactions of astronauts during the "Voskhod" spaceship flight. Izv. AN SSSR. Ser. biol. no.6:877-883 N-D '65. (MIRA 18:11)

L 10586-66 FSS-2/EWT(1)/FS(v)-3/EEC(k)-2/EWA(d) TT/DD/RD/GW
ACC NR: AP6000311 SOURCE CODE: UR/0293/65/003/006/0940/0945

67
B

AUTHORS: Leonov, A. A.; Lebedev, V. I.

ORG: none

TITLE: On the orientation of man in cosmic space

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 6, 1965, 940-945

TOPIC TAGS: space medicine, space motion sickness, space orientation, extravehicular activity

ABSTRACT: An analysis of the psychological mechanisms of the orientation of a man in conditions of the gravitational force of the earth during flights in rocket aircraft is presented. The authors consider the effects of weightlessness in conditions of orbital flight and during extravehicular activity in cosmic space. It is shown that A. A. Leonov did not experience disorientation symptoms during his extravehicular experience. The stimuli which provide a man with a sense of orientation and cognizance of distance are reviewed and compared as they apply (or do not apply) in terrestrial versus cosmic circumstances. The history of A. A. Leonov's exit into space is reviewed, and it is surmised that man can, in general, function in circumstances wherein the normal orientation stimuli are lacking. Several scientists have studied the psychological reactions of men during short periods of weightlessness. Three general categories of reaction are noted: 1) no adverse effects with no loss in

UDC: 629.198.61

Card 1/2

L 10586-66

ACC NR: AP6000311

functional capability, 2) a sensation of falling, of free "swimming" in air, a sharp sense of tumbling without direction, etc, and 3) aggravated sensations of disorientation combined with the symptoms of seasickness. Some of the manifestations of the adverse effects are reviewed as case histories. The authors feel that training and experience are the best preventative for disorientation symptoms, and they recommend a careful selection of astronauts for extravehicular activity.

SUB CODE: 22, 06/ SUBM DATE: 27May65/ ORIG REF: 021/ OTH REF: 004

Card 2/2

L 22873-66 FSS-2/EWT(1)/EEC(k)-2/EWA(d) TT/RD/GW

ACC NR: AP6012836 SOURCE CODE: UR/0293/66/004/002/0311/0319

AUTHOR: Akulinichev, I. T.; Antoshchenko, A. S.; Znachko, V. A.; Ivanov, A. Ye.; Lebedev, V. I.; Maksimov, D. G.; Uglov, A. Ye.; Khlebnikov, G. F.

ORG: none

TITLE: Some results of monitoring the medical condition of P. I. Belyayev and A. A. Leonov during training and during orbital flight

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 2, 1966, 311-319

TOPIC TAGS: manned spaceflight, cosmonaut training, pressure chamber, human physiology, EVA / Voskhod-2

ABSTRACT: Training data for Leonov and Belyayev were compared with data from the Voskhod-2 flight. The cosmonauts were trained for rarefied atmosphere conditions by sequential exposure to pressure chamber altitudes of 5, 10, and 32—37 km. At an altitude of 5 km, neither cosmonaut required high altitude equipment or supplementary oxygen. At an altitude of 10 km, they breathed pure oxygen. In a rarefied atmosphere of 32—37 km, the cosmonauts wore suits analogous to those used on the Voskhod-2 flight. Flight system sensors and a stationary electrophysiological recorder were used. Pulse rate,

Card 1/8 UDC: 629.198.61

L 22873-66

ACC NR: AP6012836

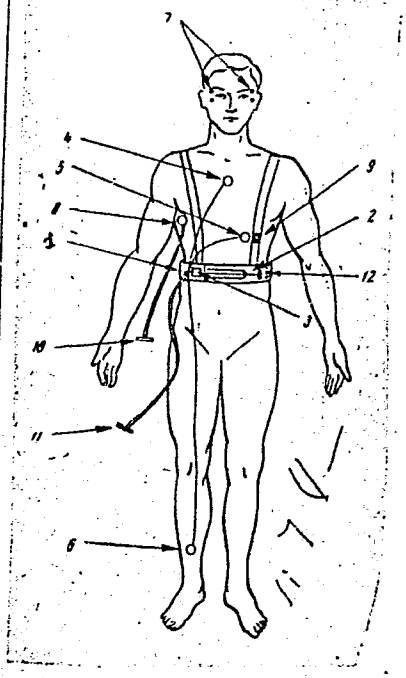


Fig. 1. Position of physiological sensors on the cosmonaut.

1 - Individual system of electrode and sensor positioning; 2 - ohmic respiration sensor; 3 - contact respiration sensor; 4, 5 - EKG electrodes; 6 - ground; 7 - EOG electrodes; 8 - body temperature sensor (submuscular area, Leonov only); 9 - SCG sensor; 10, 11 - detachable terminals; 12 - lacing.

Card 2/8

Table 1. Changes in some physiological indexes of Belyayev and Leonov during space suit tests at 36km

Index	Belyayev			Leonov		
	Before	36 km	After	Before	36 km	After
Pulse rate, min.	12	9—18	12—28	16	12—18	12
Resp. rate, min.	67	60—67	62	63	67—68	67
P—Q, sec.	0,20	0,16—0,20	0,18	0,12	0,12—0,14	0,12
QRS, sec.	0,10	0,08—0,10	0,10	0,08	0,05—0,06	0,06
QRST, sec.	0,40	0,40	0,40	0,32	0,32—0,36	0,36
Systolic Index, %	42	40—42	40	33	33—41	36
P, mm	1	1	1	1	0,5—0,8	Weak
R, mm	9	11	8	22	19—23	15
S, mm	0,5	Weak	0,5	6,5	4	2
T, mm	5	3—4	3	6	4—6,5	3,5

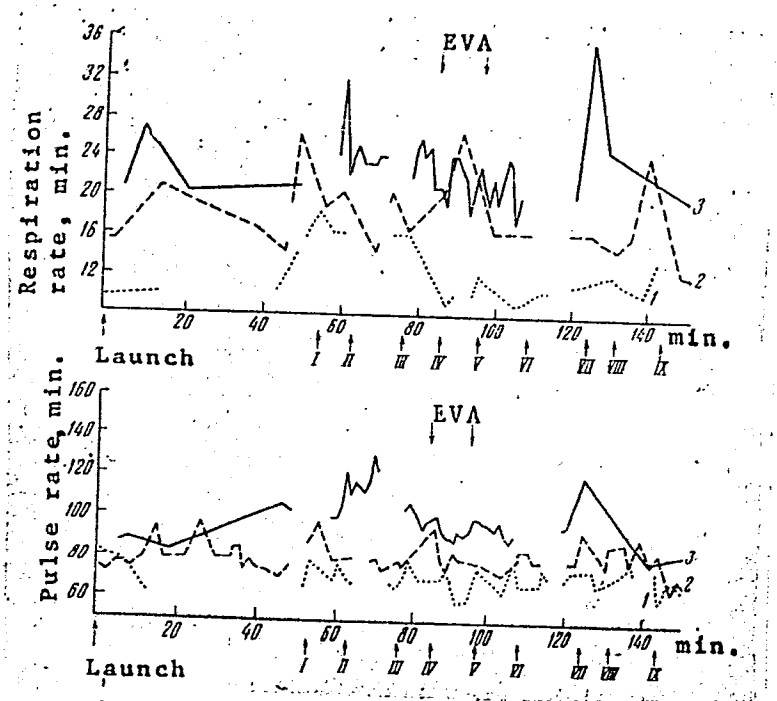


Fig. 2. Changes in the pulse and respiration rate of Belyayev when training and during the Voskhod-2 flight

I - Leonov entering the pressure lock; II - closing the cabin hatch; III - opening the pressure lock hatch; IV - Leonov's egress or imitated egress from the pressure lock; V, VI - Leonov's simulated or actual EVA; VII - Leonov's return to the cabin; VIII - closing the cabin hatch; IX - spacesuit pressure normalization to cabin atmosphere. 1 - training in a normal atmosphere; 2 - training at 37 km; 3 - orbital flight

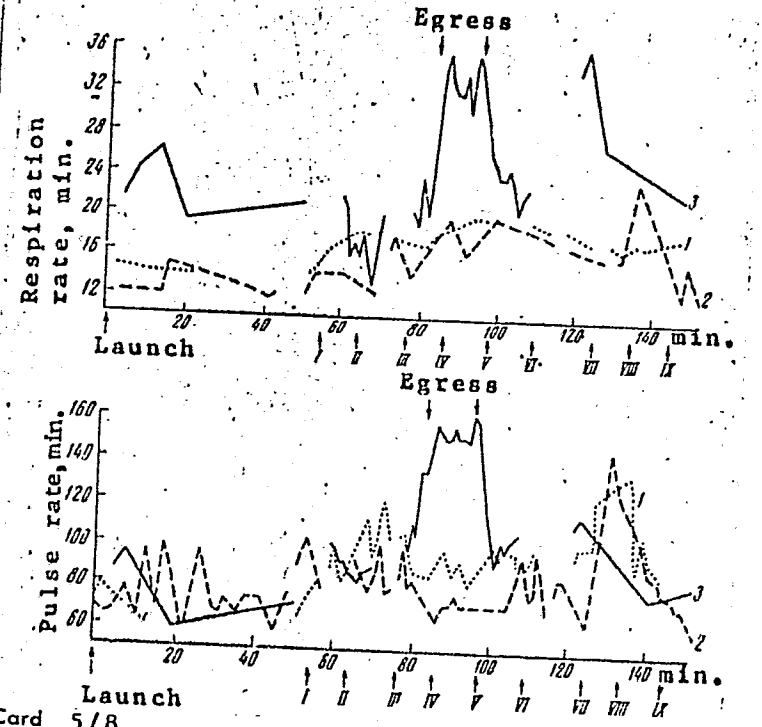


Fig. 3. Changes in the pulse and respiration rate of Leonov when training and during the Voskhod-2 flight

I - Leonov entering the pressure lock; II - closing the cabin hatch; III - opening the pressure lock hatch; IV - Leonov's egress or imitated egress from the pressure lock; V, VI - Leonov's simulated or actual EVA; VII - Leonov's return to the cabin; VIII - closing the cabin hatch; IX - spacesuit pressure normalization to cabin atmosphere. 1 - training in a normal atmosphere; 2 - training at 37 km; 3 - orbital flight

APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R000929030002-6"

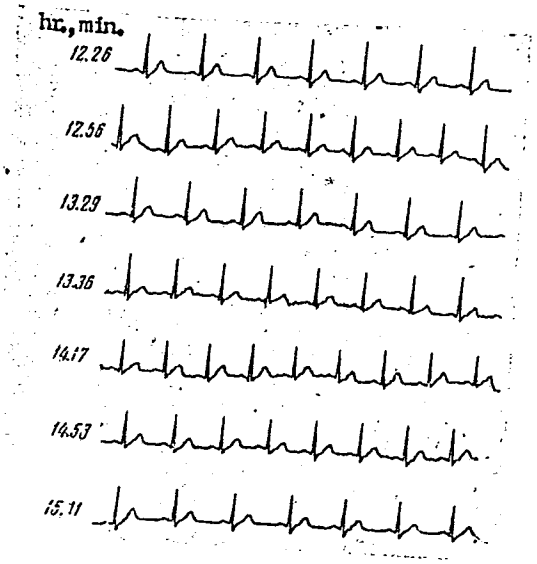


Fig. 4. Belyayev's EKG's when rehearsing the flight program in the spacecraft mockup (exercise no. 2, 37 km)

12.26 - normal condition; 12.56 - instrument check; 13.29 - prior to Leonov's entrance into the pressure lock; 13.36 - opening the cabin hatch; 14.17 - imitation of the egress; 14.53 - Leonov's return to the cabin; 15.11 - after the egress program and normalization of suit pressure

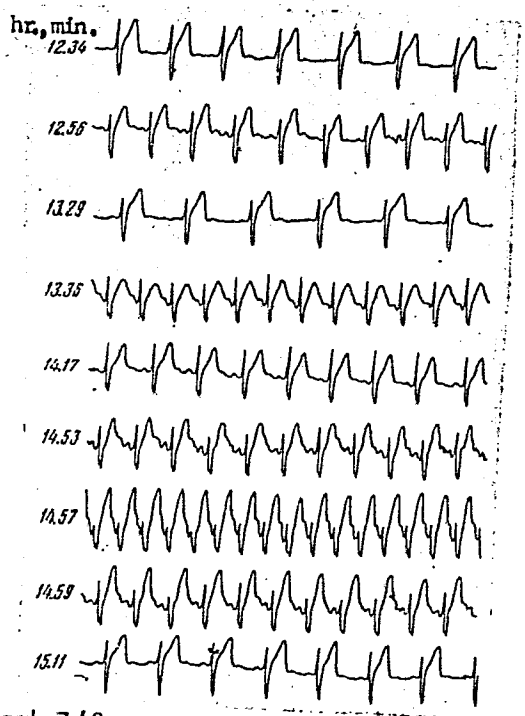


Fig. 5. Leonov's EKG's when rehearsing the flight program in the spacecraft mockup (exercise no. 2, 37 km)

12.34 - normal condition; 12.56 - instrument check; 13.29 - prior to entering the pressure lock; 13.36 - opening the cabin hatch; 14.17 - imitation of egress; 14.53 - return to the cabin; 14.57 - closing the cabin hatch; 14.59 - instrument check; 15.11 - after returning to the seat and normalizing suit pressure

L 22873-66

ACC NR: AP6012836

respiration rate, and EKG's were recorded along with visual (TV) observations. Two-way radio communication was maintained. A space-craft mockup was used to test two series of exercises. In the first exercise, the cosmonauts rehearsed the program involving the movement of Leonov into the pressure lock under normal atmospheric conditions. The second exercise entailed the same regimen at an altitude of 37 km. A diagram of the sensors used is shown in Fig. 1. Results of the tests are given in Figs. 2—5 and Table 1. All Voskhod-2 systems and the newly designed suit used for Leonov's EVA functioned normally both during the training program and the flight itself. During training and the Voskhod-2 flight, the pressurization and egress program caused accelerated pulse and respiration rates and functional EKG variations in both cosmonauts. These were attributed to emotional stress, and in Leonov's case, physical strain. The training program was judged to be fully applicable to the Voskhod-2 program. Orig. art. has: 1 table and 5 figures.

[CD]

SUB CODE: 05, 06/ SUBM DATE: 01Nov65/ ORIG REF: 006/ ATD PRESS: 4234

Card 8/8 LC

17411-66 EEC(k)-2/EWT(1)/EWA(d)/FSS-2 SCTB TT/DD/RD/GW

ACC NR: AP6003450 SOURCE CODE: UR/0216/66/000/001/0003/0013

AUTHOR: Kas'yan, I. I.; Kolosov, I. A.; Kopanev, V. I.; Lebedev, V. I.

ORG: none

30
B

TITLE: Physiological reactions of cosmonauts in free space

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 1, 1966, 3-13

TOPIC TAGS: Voskhod 2, parabolic flight, Leonov, Belyayev, weightlessness effect, acceleration effect, nystagmus, motor analyzer

ABSTRACT: The physiological effects of the various training programs in preparation for the Voskhod-2 flight were studied, with special attention given to EVA operations during parabolic flights which lasted 25—30 sec. These exercises by both Leonov and Belyayev took place in a mockup of Voskhod-2 which was situated in the cabin of the flying laboratory. Prior to each operation, Leonov had to locate his backpack containing the automatic life-support systems, attach it to himself, check out the hardware with Belyayev, and equalize the air-lock and cabin pressure. After this, he would enter the air-lock, don his hermetic helmet, check the position of the light filters, the oxygen supply, and the spacesuit for leaks. Belyayev would then close the cabin hatch, depressurize the air-lock, and open its hatch through which Leonov would then egress. Leonov would then conduct as many egress and return operations as necessary. It was found that to perfect moving through the lock

Card 1/8 UDC: 612:629.195.2

took no less than 2—3 parabolic flights. The results of these tests are shown in Table 1. To perfect approach and especially egress required considerable practice; Leonov required 6 practice egresses and 4 practice approaches. His first three egress operations took 19—20 sec in contrast to 6—8 sec in subsequent runs. Leonov's impressions during one of the last training flights were as follows: "The flight went well. I did not feel any uncomfortable sensations. They were the same as those experienced in earlier flights. The spacesuit limits movements somewhat, and the helmet limits the visual field. The approach to the lock was easily executed since pulling on the umbilicus provided fulcrum and established the direction of motion. Approaches and egresses can be smoothly executed. Apparently, any operation can be completed during weightlessness without noticeable disruption of coordination when there is the smallest point of support." Some results of physiological observations made during training flights are given in Table 2, which shows some differences in the reactions of the cosmonauts. Table 3 shows that cardiovascular reactions were as expected. Motor activity studied during the training flights showed that Leonov had a tendency to take slightly longer than normal to complete various operations during acceleration and weightlessness, as shown in Table 4. The results of vestibular tests before and after training flights are given in Table 5; they demonstrated that the vestibular stability of Leonov and Belyayev was sufficiently high. It was concluded that the need for the on-the-ground modeling of cosmonaut activities has increased as has the need for space-craft and space-station mockups which can be used during parabolic flights. These

L 17411-66
ACC NR: AP6003450

Table 1. Proficiency of egresses from and approaches to the lock by cosmonaut A. A. Leonov during parabolic flights on a special aircraft

Egress from the lock			Approach to the lock		
Repetitions	Time, sec	Proficiency	Repetitions	Time, sec	Proficiency
1	20	Turn backwards	1	6	Approach to the side
2	19	Turn to the side	2	7	The same
3	20	" "	3	6	" "
4	16	Turn forward	4	10	Smooth approach, without turn
5	12	Turn to the side	5	10	The same
6	12	Smooth egress, without turn	6	10,7	" "
7	8	The same	7	9	" "
8	8	" "	8	10	" "
9	12	" "	9	10	" "
10	8	" "	10	10	" "
11	5	" "	11	10	" "
12	5	" "	12	7	" "
13	10	Slight turn to the side	13	6	Approach to the side
14	8	Slight turn backwards	14	9	Smooth approach, without turn
15	5	Smooth egress, without turn	15	9	The same
16	6	The same	16	6	" "
17	6	" "	17	5	" "
18	8	" "	18	6	" "
19	6	" "	19	8	" "
20	6	" "	20	6	" "

Card 3/8

L 17411-66

ACC NR: AP6003450

Table 2. Reactions of cosmonauts P. I. Belyayev and A: A. Leonov before, during, and after parabolic flight

Cosmonauts	Flight No.	Before flight			During flight				After flight		
		Coloring of facial skin	Motor activity	Speech activity	Coloring of facial skin	Motor activity	Speech activity	Quality of performance of the flight program	Coloring of facial skin	Motor activity	Speech activity
P. I. Belyayev	1	Normal			Normal	Decreased	Decreased	Slowly, confidently	Normal	Decreased	Decreased
	2					Normal	Normal	Rapidly, confidently		Normal	Normal
	3					"	"	The same		"	"
A. A. Leonov	1				Hyperemia	Increased	Increased	Rapidly, confidently	Hyperemia	Increased	Increased
	2	"			"	"	Normal	The same	Moderate hyperemia	"	Increased
	3				Normal	Normal	"	" "	Normal	Normal	

Card 4/8

Table 3. Change of pulse and respiration rates in cosmonauts during training flights on a weightlessness parabola (In the numerator—ranges of variation in pulse rate, in the denominator—of respiration rate)

Cosmonauts	Flight No.	Before Flight	In flight				After flight
			Horizontal segment	Acceleration	Weightlessness	Acceleration	
Brief weightlessness (immobilization in working location)							
P. I. Belyayev	1	84—90 18—24	90—96 15—18	100—114 18—26	70—89 16—18	102—120 19	84 18
A. A. Leonov	1	54—60 21—24	66—72 18—24	84 18	60—70 18—21	84 24	66 18
Brief weightlessness (perfecting elements of egress and ingress)							
P. I. Belyayev	1	64 12	72—78 14—14	80—88 16—16	76—78 14—14	84—88 16—18	70 12
	7	68 12	70—80 12—16	80—100 14—20	76—88 12—16	80—100 14—20	78 12
A. A. Leonov	1	68 12	76—90 14—22	80—102 16—24	76—90 14—20	80—108 18—26	80 14
	7	64 12	70—84 12—14	80—90 14—16	78—84 12—14	82—96 14—16	76 12

Table 4. Data concerning the motor activity of cosmonauts during flights on Kepler's parabola (averaged data)

Cosmonauts	Total time of execution of complex movement on the coordinograph (sec)				Time of touching "pencil" to terminal of the coordinograph (sec)			
	On ground	During acceleration before weightlessness	During weightlessness	During acceleration after weightlessness	On ground	During acceleration before weightlessness	During weightlessness	During acceleration after weightlessness
P. I. Belyayev	4,8 4,72—4,88	3,98 —	4,29 4,08—4,50	3,16 —	0,56	0,27	0,34	0,27
A. A. Leonov	3,9 3,56—4,30	7,12 5,68—8,56	5,18 4,44—5,92	7,22 6,48—7,96	0,25	0,45	0,36	0,39

Note: Ranges of variations during execution of complex movements are listed in the denominator, and averaged data in the numerator.

Table 5. Change in the duration of postrotational nystagmus and counterrotational illusion (sec) before and after parabolic flights, by Kepler trajectory

Cosmonauts	Flight number	Postrotational nystagmus		Counterrotational illusion	
		Before flight	After flight	Before flight	After flight
P. I. Belyayev	1	12	10	10	7
	7	9	6	8	5
A. A. Leonov	1	15	12	12	11
	7	10	6	9	5

L 17411-66
ACC NR: AP6003450

flights would entail training cosmonauts to connect joints and conduct various repair operations both inside and outside (on the surface) the mockup (welding, cutting, and riveting, etc.). Orig. art. has: 6 tables and 4 figures. [CD]

SUB CODE: 06/ 22/ SUBM DATE: 18Aug65/ ORIG REF: 007/ ATD PRESS: 4206

Card 8/8 nst

L 11781-66 FSS-2/EWT(1)/FS(v)-3 DD

ACC NR: AP6003276 SOURCE CODE: UR/0246/66/066/001/0081/0088

AUTHOR: Gorbov, F. D. (Moscow); Kuznetsov, O. N. (Moscow); Lebedev, V. I. (Moscow)

ORG: none

TITLE: The modeling of psychosensory disorders under conditions of short-term weightlessness

SOURCE: Zhurnal nevropatologii i psikhiatrii, v. 66, no. 1, 1966, 81-88

TOPIC TAGS: human physiology, parabolic flight, weightlessness, space psychology, spatial disorientation, ~~depersonalization~~

ABSTRACT: The authors reviewed 10 Western and 28 Soviet sources to demonstrate that the reaction of healthy subjects to short-term weightlessness (20—60-sec parabolic flights) can be used as a model of some clinical psychosensory disorders such as depersonalization, derealization, the "end-of-the-world" syndrome, etc. The reaction characteristics of subjects exposed to weightlessness fall into three categories. In the first, weightlessness is tolerated without difficulty or unpleasant sensation, and working ability is not impaired. It is stated that all Soviet cosmonauts fall into this category. The second category consists of subjects who experience acute sinking, tumbling, soaring, counterrotational, and upside-down sensations, accompanied by sensations of discomfort, fear, and loss of spatial orientation during the first 4—5 sec of weightlessness. These sensa-

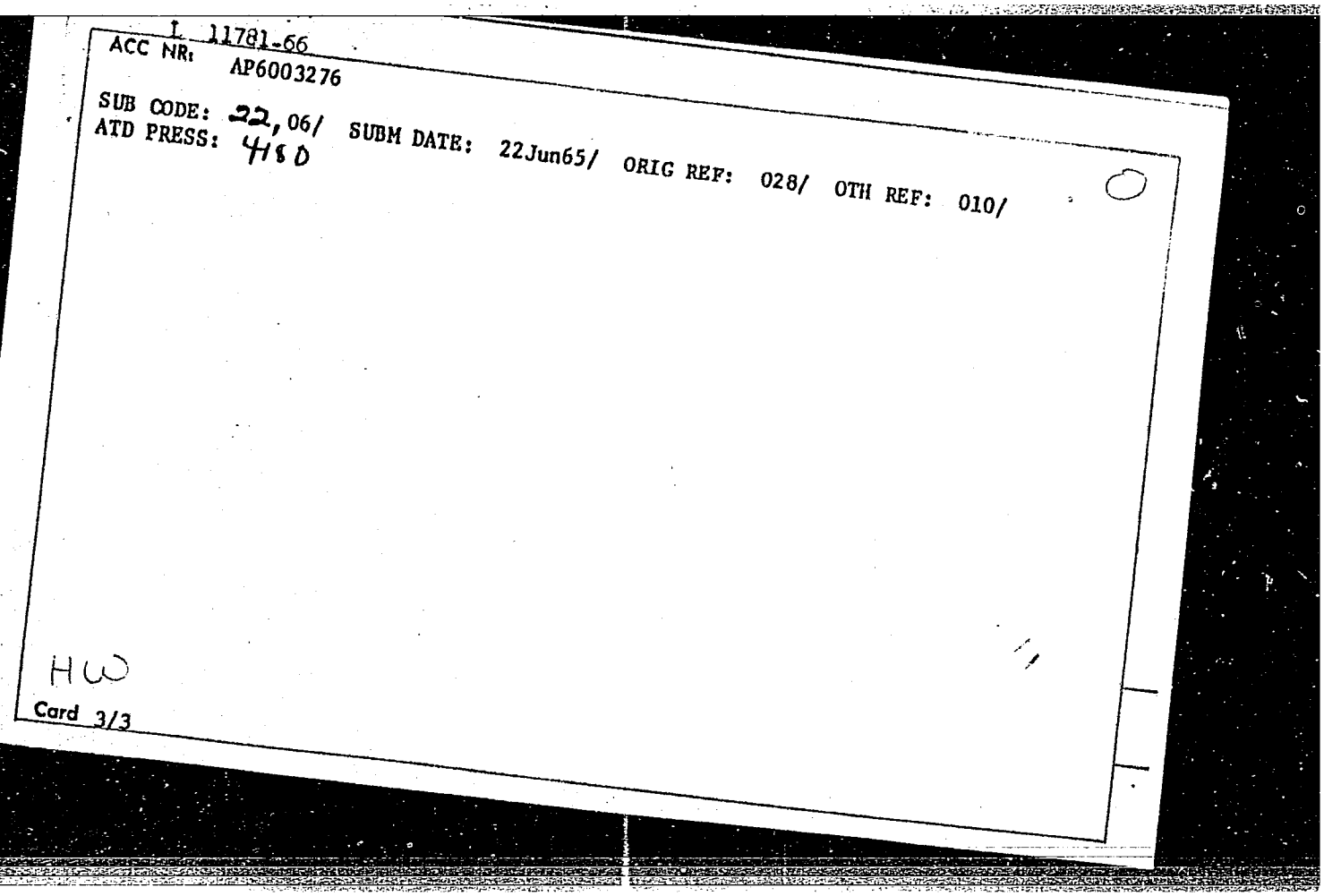
Card 1/3 UDC: 613.693-07:612.014.47+616.89-008.428.1

L 11781-66

ACC NR: AP6003276

tions are interchangeable with those of happiness, playfulness, and euphoria. Subjects in the second category ultimately adapt to subsequent flights. The third category consists of individuals whose illusory reactions to weightlessness are more severe and persist throughout the entire weightless period, often resulting in seasickness. Some individuals of a subgroup of the third category experience acute sinking sensations which lead to hysteria, involuntary screaming, and increased motor activity, persisting throughout the entire weightless period. Such a complete loss of spatial orientation is compared to depersonalization or the "end-of-the-world" syndrome. In general, there are many significant features common to both psychosensory disorders and those perceptual sensations observed during parabolic flights. An analysis of psychophysiological reactions to short-term weightlessness can serve to confirm theories of the origins of disintegrative psychosensory disorders. Weightlessness data indicates that psychosensory reactions have three phases: In the first phase, there is a dissociation of analyzer activity which can be accompanied by unpleasant sensations and unstable spatial illusions; in the second phase, depersonalization reactions occur although the subject interprets the illusions rationally; in the third phase, depersonalization and derealization occur with delirious illusory interpretations by the subject. It is concluded that the analysis of psychosensory reactions to short-term weightlessness can lead to an understanding of the pathogenic mechanisms of clinical psychosensory disorders, just as studies of specific reactions to isolation and sensory deprivation can serve to elucidate some heretofore unclear questions concerning various psychiatric syndromes. [CD]

Card 2/3



L 11781-66
ACC NR: AP6003276

SUB CODE: 22,06/ SUBM DATE: 22Jun65/ ORIG REF: 028/ OTH REF: 010/
ATD PRESS: 4180

HW
Card 3/3

L 43979-66 EWT(1)/FSS-2 DD

ACC NR: AP6029423 SOURCE CODE: UR/0177/66/000/008/0060/0062

AUTHOR: Khilov, K. L. (Professor); Kolosov, I. A. (Major, Medical corps); Lebedev, V. I. (Lieutenant colonel, Medical corps); Chekirda, I. F. (Senior lieutenant, Medical corps)

ORG: none

TITLE: Changes in acceleration sensitivity thresholds under conditions of brief weightlessness

SOURCE: Voyenno-meditsinskiy zhurnal, no. 8, 1966, 60-62

TOPIC TAGS: weightlessness, acceleration biologic effect, space physiology, human physiology, acceleration tolerance, vertibular training, vestibular analyzer

ABSTRACT: A preliminary step of this investigation involved determining a trend in acceleration sensitivity shifts during brief weightlessness (parabolic flights). After determining the sensitivity of the vestibular analyzer, the following method of judging the sensitivity of the horizontal semicircular canals to angular accelerations was employed: A subject was fixed in a Barany chair with head inclined forward 30° and eyes closed. At first, the chair was rotated at a rate of 180° per 20 sec. If a sensation of rotation did not occur, the chair was then rotated through 360° for 20 and 15 sec with a 3—5 min interval. Only positive acceleration sensitivity thresholds were considered and stopping sensations were neglected. The chair was

Card 1/3 UDC: 612.886-06:629.19

L 43979-66

ACC NR: AP6029423

rotated manually by a physician. In a few cases, electronystagmograms were recorded. When a subject sensed acceleration, he informed the physician who fixed the onset time with a stop watch. Background data were gathered during normal horizontal flight. Rotation commenced 5 sec after the beginning of weightlessness. The duration of weightlessness periods was 24—26 sec. Before and after weightlessness, head-pelvis forces of 1.8 and 2.0 G lasting 10—12 sec were experienced. Eleven males aged 23—45 were studied and a total of 24 experiments were run. Of this number, three subjects were exposed to weightlessness once, five were exposed twice during a single flight, and six were exposed from two to six times in the course of 2—3 flights. Analysis of the data from weightlessness runs revealed a shift in the threshold sensitivity of the horizontal semicircular canals to angular accelerations. In every case there was an increase in the duration of the rotational time necessary to obtain a threshold sensation which indicated decreased excitability of canal receptor formations. In 4 subjects, rotation sensation occurred at the 15th and 16th sec at a rate of 180° per 20 sec in horizontal flight; at the same rate during weightlessness no threshold sensation was observed. In one subject, a rate of 360° per 20 sec brought on a rotational sensation after 12 sec while during weightlessness, no sensation occurred. In the remaining subjects, the time necessary to induce a manifestation of rotational sensation during weightlessness was increased by 3—11 sec compared to control data taken during horizontal flight. The average elapsed time necessary to evoke threshold rotational sensation increased by 1.7 compared with average background (horizontal flight) values. It was concluded that brief weightlessness following positive accelerations leads to an increase in acceleration sensitivity thresholds. These increases are apparently due to the elimination of the

Card 2/3

L 43979-66
ACC NR: AP6029423

activating influence of otoliths on sensory reactions of the semicircular canals as a result of a "loss" of otolith weight.

[CD]

SUB CODE: 06/ SUBM DATE: none/ ATD PRESS: 5071

Card 3/3 CLK

ACC NR: AT6036605 SOURCE CODE: UR/0000/66/000/000/0244/0245

AUTHOR: Kuznetsov, O. N.; Lebedev, V. I.; Litsov, A. N.

ORG: none

TITLE: Problem of the "application" method of strict sensory deprivation during prolonged quiet-room tests /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966/

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 244-245

TOPIC TAGS: isolation test, sensory deprivation, space psychology, psychologic stress, cosmonaut training, psychophysiology

ABSTRACT:

Methods were sought to naturally enforce strict sensory deprivation in the absence of subjective psychological complications. In the process of soundproof chamber tests of neuropsychic stability during normal daily activity and an increase of up to 9 hours of regulated sleep, it was established (based on subjective evaluations by the subjects, EEG's during sleep, autography, nocturnal pulse and respiration dynamics) that the majority of subjects slept no longer than 7 hours. The remaining time

Card 1/2

ACC NR: AT6036605

alloted for sleep was spend in a horizontal position in darkness with strictly limited movements. These hours were tolerated with great difficulty but were not considered as artificial by the subjects.

From here, experiments using a shifting daily activity regimen (sleep from 14:00--23:00) were conducted. Tests began at 13:00. During the first regulated sleep period (experimental night) subjective and objective data showed that subjects did not sleep more than 4 hr. The remainder of sleepless time was spent lying in a rigid position in the darkened soundproof chamber. This permitted the calculation of sleepless hours while conducting prolonged chamber tests applying strict sensory deprivation on a backround of relative deprivation. Despite the fact that these states were tolerated with great difficulty, no psychopathological manifestations were noted. The degree of human adaptation to sensory deprivation was judged to be a direct result of functional adaptation to altered daily routines.

The method of enforcing strict sensory deprivation on a background of relative sensory deprivation while increasing the number of hours of regulated sleep during a normal and altered daily routine can be used for evaluating spacecraft-operator tolerance to sensory deprivation.
[W. A. No. 22; ATD Report 66-116]

Card 2/2 SUB CODE: 06,05 / SUBM DATE: 00May66

ACC NR: AT6036612 SOURCE CODE: UR/0000/66/000/000/0254/0255

AUTHOR: Legon'kov, B. V.; Surinov, Yu. A.; Kuznetsov, O. N.; Lebedev, V. I.

ORG: none

TITLE: Question of the psychological bases of individual physical training /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966/

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 254-255

TOPIC TAGS: cosmonaut training, space psychology, physical exercise, space physiology, psychophysiology

ABSTRACT:

Individualization of the physical preparation program is one of the best methods for developing the individual psychological qualities necessary for good performance in spaceflight. Of course such individual tailoring of physical training is impossible without analysis of the personality of each cosmonaut. On one hand, data obtained from psychological studies is used by physical-education instructors to select the most effective teaching methods. On the other hand, observation of cosmonaut behavior in the process of physical training is a valuable

Card 1/4

addition to the complete psychological picture. During physical training emotional and volitional characteristics, demonstrated in the ability to overcome difficulties, thoroughness of movements, psychomotor activity, formation of motor coordination habits, and initiative, are identified. With the use of exercises selected according to the degree of individual physical preparedness,(jump turns from unusual positions, complicated jumps on the trampoline, and a variety of other exercises) it was possible to identify other psychic characteristics: stamina, the capacity for analytical thought, attention, and memory.

The method of studying individual personality characteristics and the method of developing psychologically valuable qualities by means of physical preparation was developed by the authors on the basis of experimental work by the leading athletic psychologists P. I. Rudik, O. A. Chernikova, and T. I. Gagayeva. Personality manifestations in work were considered on the basis of theories of B. M. Teplov and V. S. Merlin.

Complex study of personality (using the methods of teaching psychology) during physical training permits substantiation of data obtained during observation by means of laboratory experiments. Data

can also be compared with those from sources of personality information associated with the method of clinical psychology. Inclusion of physical training in personality study permits use of the teaching-psychology experiment, which expands the possibilities of personality analysis.

Athletic games with carefully selected teams are used to determine the group characteristics of a given group of cosmonauts. Various team rearrangements help clarify group typology of individual cosmonauts (according to the methods of F. M. Gorbov and M. A. Novikov).

Individualized physical training consists of two steps; 1) interviews and observation, and 2) individual preparation and experiments in teaching psychology. There are many kinds of possible interactions between psychological study and physical training: information can be exchanged between instructors and psychologists using the same personality theory and study methods, joint consultations on training methods can be held, individual courses of study for each cosmonaut can be developed and modified jointly.

ACC NR: AT6036612

Scientific and psychological grounding of individualized programs for the physical training of spacecraft operators will enable researchers to uncover and reinforce valuable psychological qualities in cosmonauts without fear of overtraining or breakdown.

[W. A. No. 22; ATD Report 66-116]

SUB CODE: 06,05 / SUBM DATE: 00May66

Card 4/4

ACC NR: AN6006284 SOURCE CODE: UR/9034/66/000/011/0002/0003

AUTHOR: Leonov, A. A. (Cosmonaut pilot; Hero of the Soviet Union); Lebedev, V. I. (Candidate of medical sciences)

ORG: none

TITLE: Penetration into space and human spatial perception beyond the earth

SOURCE: Meditsinskaya gazeta, no. 11, 1966, 2-3

TOPIC TAGS: human physiology, weightlessness, space psychology, disorientation, visual analyzer, Voskhod-2

ABSTRACT: Disruption of analzyer systems is responsible for spatial illusions during space flight. In weightless conditions the role of the visual analyzer becomes considerably more important. Other receptors, it is pointed out, were formed solely by terrestrial forces, while the eyes depend on light from the sun. The importance of the visual analyzer is further increased when the cosmonaut is in free space with only the slight support of an umbilicus. In free space, tactile and muscular sensations drop off. Nerve impulses from muscle and skin receptors give the cosmonaut no information about his position in space; they only inform him of the relationship of his body parts (including the suit and umbilicus). With the destruction of the cosmonaut's psychological concept of his position in space, which had been based on tactile, proprioceptive, and visual sensations, a change to an orientation based

Card 1/2

L 39737-66

ACC NR: AN6006284

solely on visual impressions occurs. The function of the visual analyzer must now extend to correction of information coming into the brain from other sense organs. The new functional analyzer system developed in space flight is less stable than the natural system, but with special training it can prevent disorientation in space flight. Leonov's successful adaptation to free space was the result of this sort of training. Before the Voskhod-2 flight he thoroughly learned a system of coordinates in which the capsule is always "down." Due to emotional conditioning during parachute jumps, parabolic flights, etc., Leonov was able to overcome the significant psychological barrier of fear of entering free space. By his own account and according to physiological indices, Leonov's entry into space was not accompanied by a sharp increase in stress. In his description of the EVA Leonov says that his push-aways from the spaceship were accomplished back first at a 45° angle to the long axis of the lock. Approach maneuvers were done head first with arms outstretched to prevent striking the ship. Orientation in space was preserved using the capsule and the Sun as focal points. [JS]

SUB CODE: 06/ SUBM DATE: none/ ATD PRESS: 4218

Card 2/2 HLS

LEBEDEV, V. K.

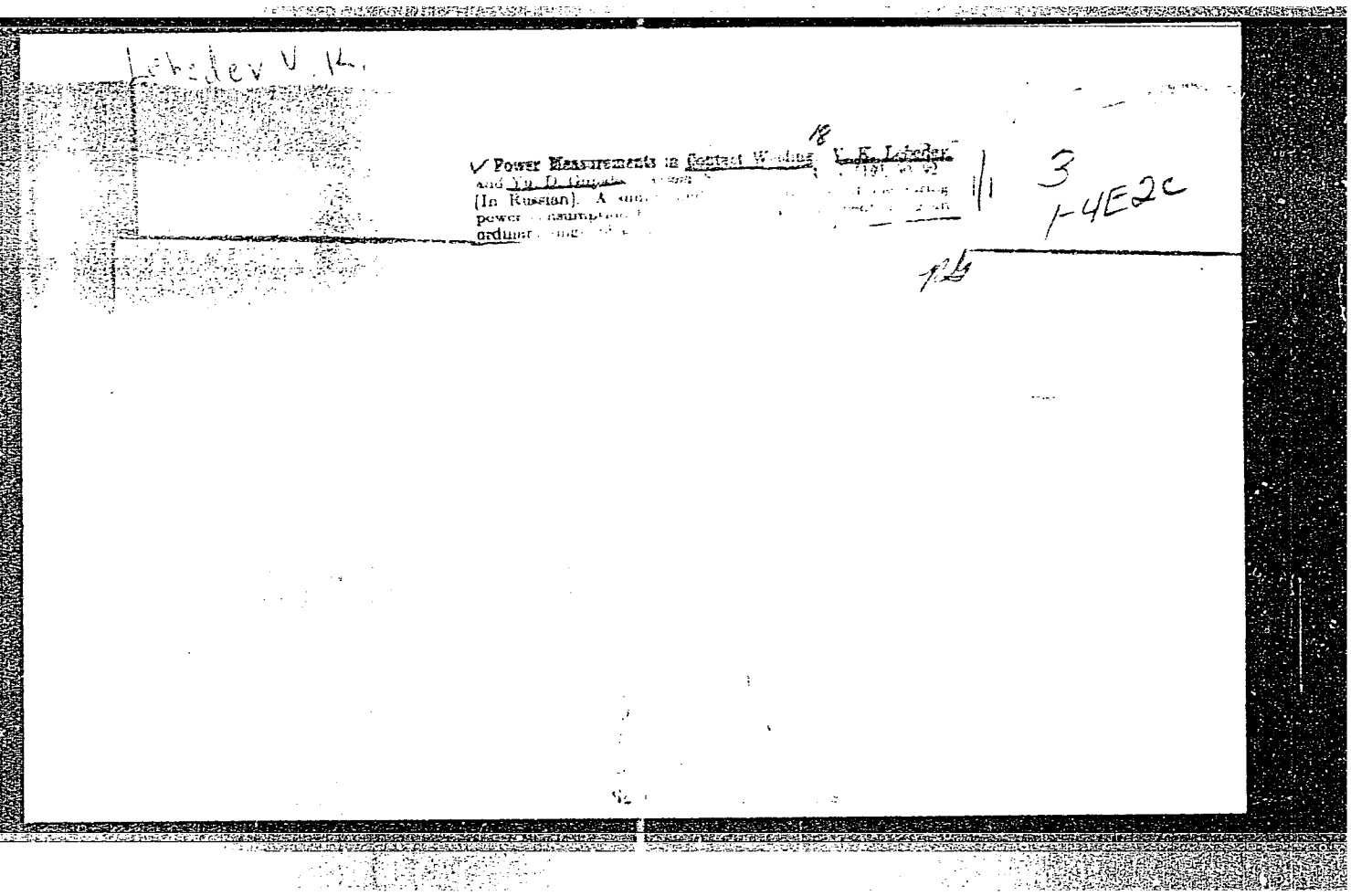
Lebedev, V. K. "Power sources for the welding arc under factory and field conditions", Trudy Vsesoyuz. konf-tsii po avtomat. svarke pod flyusom, 3-6 October 1947, Kiev, 1948, p. 150-77.

SO: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 11, 1949).

LEBEDEV, V. K.

Lebedev, V. K. "On a transformer with a movable winding", Trudy po avtomat. svarke pod flyusom (In-t elektrosvarki im. Patona), Collection 5, 1949, p. 72-83, - Bibliog: 5 items.

SO: U-4392, 19 August 53, (Letopis 'Zhurnal 'nykh Statey, No 21, 1949).



Lebedev V. K.

✓ Power Measurements in Contact Welding [illegible] and [illegible] [In Russian]. A [illegible] power [illegible] ordinar[illegible]

18

1/1 3 1-4E2c

Lebedev, V.K.

PATON, B.Ye., LEBEDEV, V.K: PATON, Ye. O., redaktor; RAKHLINA, N.P., tekhnicheskiy redaktor.

[Elements for computing alternating-current circuits and apparatuses for electric welding] Elementy raschetov tsepei i aparatov peremennogo toka dlia dugovoi svarki. Kiev. Izd-vo Akademii nauk USSR, 1953. 143 p. (MLRA 8:8)

1. Deystvitel'nyi chlen AN USSR (for Paton, Ye. O.)
(Electric welding)

LEBEDEV, V.K.

Analysis of the discharge process of an electromagnetic storage battery for spot welding. Avtom.svar. 6 no.4:51-62 Jl-Ag '53. (MLRA 7:11)

1. Institut elektrosvarki im. Ye.O.Patona Akademii nauk USSR.
(Electric batteries) (Electric welding)

LEBEDEV, V.K.; PODOLA, N.V.

Expediency of using special presses for projection resistance-welding. Avtom. svar. 8 no.2:50-54 Mr-Ap '55. (MLRA 8:7)

1. Orden Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona, Akademiya nauk USSR. (Electric welding)

LEBEDEV, V.K.

Short circuit resistance in transformers with symmetrical disceidal windings for use in resistance welding. Avtom.svar. 9 no.3:44-51 My-Je '55. (MLRA 9:9)

1.Ordena Trudovego Krasnego Znameni Institut elektrosvarki imeni Ye.O.Patona AN USSR.
(Electric transformers)

OSTAPENKO,M.G.; LEBEDEV,V.K.; GORBUNOV,G.V.; LITVINCHUK,M.D.

Spot electric welding of pipelines. Visnyk AN URSR 26 no.5: 49-50 My '55. (MIRA 8:8)
(Electric welding) (Pipelines)

LEBEDEV, V. K.

137-58-1-958

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 135 (USSR)

AUTHOR: Lebedev, V. K.

TITLE: On the Calculation of the Resistance Under Short-circuit Loading of a Resistance Welding Transformer(K raschetu soprotivleniya korotkogo zamykaniya transformatora dlya kontaktnoy svarki)

PERIODICAL: V sb.. Probl. dugovoy i kontakt. elektrosvarki. Kiyev - Moscow, Mashgiz, 1956, pp 268-277

ABSTRACT: A description is offered of a method of approximate calculation of the resistance under short-circuit loading of a transformer with cylindrical windings, consideration being given to nonuniformity of the current distribution among the elements of the secondary. The method of superimposition of harmonic windings yielded approximate equations for analysis. This method makes it possible to draw conclusions as to the best spacing of taps from the primary.

Card 1/1 1. Transformers--Characteristics 2. Transformers --Analysis N.A.V.

PERIODICAL ABSTRACTS

Sub.: USSR/Engineering AID 4192 - P

KUCHUK-YATSENKO, S. I. and V. K. LEBEDEV
O SVARKE NEPRERYVNYM OPLAVLENIYEM IZDELIY, IMEYUSHCHIKH BOL'SHOYE KOMPAKTNOYE SECHENIYE (Continous Flash Welding of Pieces with Large Cross-Section). Avtomaticheskaya svarka, no. 1, Ja/F 1956: 29-37.

Using rails as an example of pieces with large cross-section, the authors compare welding techniques, the preliminary interrupted heating commonly used, and the more efficient continous flash welding method. They recommend the latter as shorter and more economical (current consumption is reduced two-thirds). Six graphs, a drawing and a picture. Four Russian references, 1951-1954.

AID P - 4831

Subject : USSR/Engineering

~~Card 1/2~~ Pub. 11 - 4/13

Authors : Lebedev, V. K. and S. I. Kuchuk-Yatsenko

Title : Increasing temperature of metal in butt-resistance welding by intensifying the oxidation.

Periodical : Avtom. svar., 3, 36-43, Mr 1956

Abstract : The authors describe experiments and results obtained from the butt resistance welding of low-carbon steel pipes by the method of continous flash welding. They found that the metal's temperature increases with the increase of oxidation by blowing air or a mixture of air and oxygen. This improves the quality of welded joints at a reduced current density, while the excessive use of air-mixture reduces the quality of the welded joints. The blowing of the oxidized mixture in the butt-welding of pipes has also reduced the formation of internal burrs. Two tables, 5 graphs, 1 photo.

Inst Electrowelding im Paton

AID P - 4832

Subject : USSR/Engineering

Card 1/1 Pub. 11 - 5/13

Author : Lebedev, V. K.

Title : Short circuit resistance of transformers with symmetrical discoidal winding intended for resistance welding.

Periodical : Avtom. svar., 3, 44-51, Mr 1956

Abstract : The author presents an analysis for the determination of resistance in short circuits of transformers with symmetrical discoidal winding including the resistance of secondary terminals. Eleven formulae, 3 graphs, 3 drawings. One Russian reference (1938).

Institution : Electrowelding Institute im. Paton

Submitted : 8 F 1956

LEBEDEV, V. K.

GEL'MAN, A.S., doktor tekhnicheskikh nauk, professor; KABANOV, N.S.; SLEPAK, E.S.; LEBEDEV, V.K., kandidat tekhnicheskikh nauk, retsenzent; MEZHOVA, V.A., nauchnyy redaktor; TIKHANOV, A.Ya., tekhnicheskiy redaktor

[Contact butt-welding of pipes] Kontaktnaia stykovaia svarka trub. Pod red. A.S.Gel'mana. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 231 p. (MLRA 10:8)
(Electric welding) (Pipe, Steel)

KIDRO, I.V., kandidat tekhnicheskikh nauk; LEBEDEV, V.K., kandidat tekhnicheskikh nauk; BERZIN, A.I., [redacted]

Welding nonrotatable, thin-walled pipe joints with carbon electrodes in an atmosphere of carbon dioxide. Avtom.svar. 10 no.3:44-50 My-Je '57. (MLRA 10:8)

1.Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona Akademii nauk USSR.
(Electric welding--Equipment and supplies
(Pipe, Steel--Welding)

LEBEDEV, V.K.

KUCHUK-YATSENKO, S.I.; LEBEDEV, V.K.

Heat balance during the fusion process with low specific capacities. Avtom.svar. 10 no.4:64-70 Jl-Ag '57. (MIRA 10:10)

1. Ordena Trudovog Krasnogo Znameni Institut elektrosvarki imeni Ye.O.Patona Akademii nauk USSR.
(Electric welding) (Heat--Radiation and absorption)

AUTHOR: [illegible]

KAZIMIROV, A.A.; LEBEDEV, V.K.; PATON, B.Ye.; SEVBO, P.I.

Welding in the German Democratic Republic. Avtom.svar. 10 no.4:91-104 Jl-Ag '57. (MIRA 10:10)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O.Patona Akademii nauk USSR.
(Germany, East--Welding)

LEBEDEV, V.K.

PATON, B.Ye.; LEBEDEV, V.K.

Prospects for the use of high-frequency currents in welding. Avtom. svar. 10 no.5:9-18 S-O '57. (MIRA 10:12)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.

(Electric welding)

LEBEDEV, V. K.

PATON, B.Ye.; GORBUNOV, G.V.; LEBEDEV, V.K.; OSTAPENKO, N.G.; LITVINCHUK, M.D.

Resistance welding of main pipelines. Avtom.svar. 10 no.6:19-27 N-D '57. (MIRA 11:1)

1.Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.
(Electric welding) (Pipelines--Welding)

LEBEDEV, V.K.

Calculation of additional losses in choke coils. Avtom.svar. 10.no.6:59-61 N-D '57. (MIRA 11:1)

1.Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.
(Electric transformers)

AUTHOR: Lebedev, V.K. SOV-125-58-2-8/11

TITLE: Short-Circuit Impedance of Welding Transformers With Asymmetrical Disk Windings (Soprotivleniye korotkogo zamykaniya svarochnogo transformatora s nesimmetrichnymi diskovymi obmotkami)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 2, pp 59-70 (USSR)

ABSTRACT: The author suggests a method of calculating the short-circuit impedance of a welding transformer with asymmetrical disk windings by taking into account the influence of the secondary terminals and of eddy currents in the winding conductors. The method is based on the conception of the actual system of windings in the form of three combined systems (two symmetrical and one asymmetrical). The author concludes that each system can be considered separately. Symmetrical systems can be computed by the conventional methods and evalutations of the influence of secondary terminal can be made according to given data [Ref 2]. Impedance computation of the third system is less accurate but still admissible for the method used, which is also recommended for approximate calculations.

Card 1/2

SOV-125-58-8-8/11

Short-Circuit Impedance of Welding Transformaters With Asymmetrical Disk Windings

There are 6 diagrams, 1 circuit diagram and 3 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona, AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR)

SUBMITTED: November 28, 1957

1. Welding--Equipment

Card 2/2

AUTHORS: Lebedev, V.K., and Gorbunov, G.V. SOV 125-58-3-3/13

TITLE: Short-Circuit Resistance of Butt-Machines and the Stability of the Flash-Welding Process (Soprotivleniye korotkogo zamykaniya stykovoy mashiny i ustoychivost' protsessa oplavleniya)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 3, pp 18-23 (USSR)

ABSTRACT: The effect of short-circuit resistance of butt-machines on the stability of the flash-welding process is discussed. Results of experiments are given and illustrated by drawings. In the case of fixed feed rate of the welded parts, the fusion process is stable if current and power increments are of the same sign. In the case of an extremely steep external characteristic of the butt-machine, stable fusion is impossible and it is useless to develop current stabilizers for controlling the transformer voltage. Higher short-circuit resistance of the machine necessitates higher minimum-voltage of welding in order that the fusion will proceed uniformly. The effect of active resistance on the stability of the process is stronger than that of inductive resistance. The fusion of parts of different dimensions takes place at the same current density and voltage, if rS and xS are constant (where r is the active and x is the reactive short-circuit resistance and S is the

Card 1/2

SOV 125-58-3-3/15

Short-Circuit Resistance of Butt-Machines and the Stability of the Flash-Welding Process

cross section of welded parts.
There are 5 graphs, 1 table, 2 oscillograms and 5 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electrowelding imeni Ye.O. Patona, AS UkrSSR, Bearer of the Labor Order of the Red Banner)

Card 2/2

SUBMITTED: April 7, 1956

1. Flash welding machines--Electrical properties 2. Flash welding machines--Performance 3. Flash welds

LEBEDEV, V.K.

125-58-4-5/15

AUTHOR: Lebedev, V.K., Candidate of Technical Sciences

TITLE: To the Calculation of the Short Circuit Resistance of a Welding Transformer With Core Dissipation (K raschetu sopротivleniya korotkogo zamykaniya svarochnogo transformatora s yarmovym rasseyaniyem)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 4, pp 37-43 (USSR)

ABSTRACT: A new method is suggested for approximately calculating the inductive dissipation of a transformer, the primary and the secondary winding of which are placed on different bars of the magnetic system. This calculation is based on the fictitious-windings-method previously developed by the author for calculating a choke with an air gap in the core. The calculation assures sufficient accuracy for practical purposes despite the simplified presentation of the fictitious winding.
There are 5 figures and 5 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR (Electric Welding Institute imeni Ye.O. Paton of the AS UkrSSR)

SUBMITTED: January 24, 1958

AVAILABLE: Library of Congress

Card 1/1

AUTHOR: Lebedev, V.K., Candidate of Technical Sciences 125-58-6-6/12

TITLE: Additional Losses in Windings of Pulse-Transformers for Contact Welding (Dobavochnyye poteri v obmotkakh impul'snykh transformatorov dlya kontaktnoy svarki)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 6, pp 56-63 (USSR)

ABSTRACT: Information is presented on a simplified method (based on the application of the Fourier integral) of calculating the additional losses in pulse-transformer windings for contact welding with non-periodic current. The calculation method is explained by practical examples. There are 6 graphs, 2 figures, and 5 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR (Order of Labor "Red Banner" Institute of Electric Welding im. Ye. O. Paton, AS UkrSSR)

SUBMITTED: March 22, 1958.

AVAILABLE: Library of Congress

Card 1/1 1. Welding 2. Pulse transformers-Electrical losses

LEB DYV, V.K., Doc Tech Sci -- (diss) " Inductivities of dis- ~~dif~~ sipation ~~fusion~~ and additional losses in the windings of welding transformers." Kiev, 1959. 44 pp with drawings (Acad of Sci UkSSR. Order of Labor Red Banner Inst of Electric Welding im Ye.O. Paton). 150 copies List of author's work, pp 43-44 (20 titles) (KL,39-59, 103)

35

LEBEDEV, V. K.

А.П.Прямо О.Д.Молдавский Л.М.Белова Ю.С.Голушко	Влияние отдельных элементов на свойства стали в процессе кристаллизации.
М.Я.Дашевский В.Д.Хвостикова З.Н.Титова	Влияние условий роста на структуру монокристаллов кремния.
С.Я.Скобло Е.А.Казачков В.А.Молотков	Затвердевание и неоднородность крупных стальных слитков различной конфигурации.
Е.А.Казачков С.Я.Скобло	Температурные условия затвердевания крупных стальных слитков.
Ю.П.Соловьев В.А.Лаврентьев Б.Б.Гуляев	Борьба с поверхностными дефектами на стальных слитках.
А.К.Проворный В.П.Леонов В.К.Лебедев Б.Б.Гуляев	Непрерывная разливка стали в квадратные заготовки сечением 350x350 мм.
Н.Н.Гуляев А.А.Маслов А.А.Новиков Б.Б.Гуляев	Исследование процесса затвердевания непрерывного слитка сечением 350x350 мм.

report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow-- 30 Jun 1959.

PATON, B.Ye., akademik; GORBUNOV, G.V., inzh.; LEBEDEV, V.K., kand. tekhn. nauk; OSTAPENKO, N.G., kand. tekhn. nauk; LITVINCHUK, M.D., inzh.

Resistance welding of main trunk pipelines. Svar. proizv. no.2:1-5 F '59. (MIRA 12:1)

1. Institut elektrosvarki imeni Ye.O. Patona AN USSR.
(Pipelines--Welding) (Electric welding)

25(1,5) 28(1) SOV/135-59-7-3/15

AUTHOR: Paton, B.Ye., Academician of the AS, UkrSSR,
Lebedev, V.K., Candidate of Technical Sciences

TITLE: Works of the Institute of Electrical Welding imeni Ye.O.Paton of the AS, UkrSSR in the Field of Resistance Welding

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 7, pp 7-12(USSR)

ABSTRACT: The author describes briefly the research performed by the Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electrical Welding imeni Ye.O. Paton, AS UkrSSR) in the field of resistance welding. For butt welding of rails, engineers S.I. Kuchuk-Yatsenko and V.S. Sakharnov developed a new welding technology, based on the application of continuous fusion. The institute developed rail welding machines K-135 and K- 134. Engineer N.V. Podola worked on the application of low-frequency current for butt welding reducing the operating frequency of the UMAR-25 welding machine from 50 to 10 cycles. Candidate of Tech-

Card 1/3

Works of the Institute of Electrical Welding imeni Ye.O. Paton of the AS, UkrSSR in the Field of Resistance Welding

nical Sciences, R.I. Iashkevich and engineer S.I. Kuchuk-Yatsenko worked on fusion welding of longitudinal pipe seams. Engineers Yu.D. Yavorskiy, M.D. Litvinchuk, and P.M. Prikhod'ko worked on an automatic welding machine producing valve blanks for internal combustion engines in cooperation with the Yaroslavskiy motornyy zavod (Yaroslavl' Engine Plant). Candidate of Technical Sciences Yu. A. Pachentsev, engineers V.A. Sakharnov and Yu.N. Iankin worked on suspended spot welding machines with built-in transformers. Engineers P.M. Prikhod'ko and V.A. Sakharnov worked on spot welding of T-joints. Candidate of Technical Sciences I.V. Kirdo and engineer I.K. Oleynik worked on welding longitudinal seams of pipes with high frequency current. Engineers V.A. Zavadskiy, O.V. Popovskiy and Yu.S. Grodetskiy worked on automatic controls of welding operations. Candidate of Technical Sciences G.P. Sakhatskiy and engineer R.M. Shirokovskiy

Works of the Institute of Electrical Welding imeni Ye.O.Paton of the AS UkrSSR in the Field of Resistance Welding

worked on a device for automatic thermal treatment of welded cable butts. There are 5 photographs, 4 graphs, 2 diagrams, 1 table and 11 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O.Patona AN USSR (Institute of Electrical Welding imeni Ye.O. Paton, AS UkrSSR)

25(7) SOV/125-59-8-3/18

AUTHORS: Lebedev, V.K., and Podola, N.V.

TITLE: Selecting the Frequency of the Current for Low-Frequency Contact (Welding) Machines

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 8, pp 18-24 (USSR)

ABSTRACT: This item treats the selection of the optimum welding current frequency on the basis of a study of the frequency characteristics of 4 universal contact welding machines, and considering particularities of each type of contact welding. The authors open with a broad outline of some of the factors involved in operating contact welding machines at low frequencies. The frequency of the welding current, it is stated, should be selected with regard to: a) the greatest possible reduction in power consumed by the machine; b) the minimum possible increase in the weight of the welding transformer; c) the most favorable effect on the technology of contact welding. Frequency characteristics were calculated for 4 universal machines: the MTP-300 for spot welding, the MShP-150 for seam welding, the

Card 1/4

Selecting the Frequency of the Current for Low-Frequency Contact (Welding) Machines

MRP-600 for relief welding, and the RSKM-320 for junction welding; characteristics were measured with the machines short-circuited. A sinusoidal voltage, carrying from 50 - 5 cps, was fed to the primary of the welding transformer. Analysis of the frequency characteristics obtained (Fig 1) shows that the characteristics of impedence changes relative to frequency for the various machines are roughly the same. These results are briefly discussed further. These characteristics permit calculation of the power of the machine as a function of frequency. This is briefly discussed in relation to various types of contact welding and with regard to the resistance of the welded object inserted in the secondary circuit of the machine. Some results are presented and graphed (Figs 2,3). The relationship between power and the weight of the welding transformer is mathematically derived. The authors conclude that, depending on the type of welding, the frequency should lie in the range of 5 - 10

Selecting the Frequency of the Current for Low-Frequency Contact (Welding) Machines

cps; for spot welding of light alloys and relief welding, 5 cps is considered best, and for point welding of steel and junction welding, 10 cps is best. Lowering the welding current frequency also means that consumed power can be decreased from 2-5 times, depending on the type of welding. A significant increase in the power factor of the machine also results. Further decreasing the frequency does not give a substantial power gain and leads to an unjustifiable increase in the weight of the transformer. In conclusion the authors describe the waveform put out by the simplest frequency and phase converters used in welding which is close to a square wave (Fig 5), and its effect in operation of the welding machine; it is calculated that with such a waveform power is 11% greater than with a sinusoidal wave.

SOV/125-59-8-3/18

Selecting the Frequency of the Current for Low-Frequency Contact (Welding) Machines

There are 7 graphs, 1 photograph, and 3 references, 2 of which are Soviet and 1 English.

ASSOCIATION: Ordena trudovogo krasnogo znameni - Institut elektro-svarki imeni Ye.O. Patona AN USSR (Order of the Red Banner of Labor - Institute of Electric Welding imeni Ye.O. Paton AN UkrSSR)

SUBMITTED: May 14, 1959

Card 4/4

Lebedev, V.K.

18(5,7), 25(5)
AUTHOR: None Given SOV/125-59-5-13/16

TITLE: Scientific-Technical Conference on Questions of Welding Engineering

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 5 (74) pp 95-96 (USSR)

ABSTRACT: The scientific-technical conference on question of welding engineering convened in Khar'kov from March 11-13, 1959. The following organizations convened in the conference: The Scientific-Technical State Committee of the Council of Ministers of the UkrSSR, the Khar'kov Sovnarkhoz, the Institute of Electric Welding imeni Ye.O. Patona of the Academy of Sciences of the UkrSSR, the Kiyev and Khar'kov oblast administrative NTO of the machine industry. After the introduction of the Chairman of GNTK UkrSSR, G.F. Kostenko, the conference heard the report of Academician AS UkrSSR, B.Ye. Paton "On the Reintroduction and production of Welding Engineering". After that, the following reports were heard at the conference: Member of Gos Plan UkrSSR

Card 1/3

D.I. Polyakov on establishing materials and engineering bases in the republic for the development of welding. Vice Chairman of Sovnarkhoz V.N. Yakovlev on the introduction of welding engineering in the enterprises of the Dnepropetrovsk economic administrative area. Chief of Technical Administration of the Khar'kov Sovnarkhoz I.I. Kuzubov on the introduction of progressive welding engineering in the enterprises of the Sovnarkhoz, Comrade Ratnikov on successes of the Zaporozh'ye Metal Construction Factory in introducing welding engineering. Candidate of Technical Sciences I.I. Frumin (Institute of Electric Welding imeni Ye.O. Paton) on new works on automatic welding. Chief of Welding Department of the Novo-Kramatorskiy Mashine Factory V.K. Yeremenko on the use of "electric Slag" welding in heavy machine building. Candidate of Technical Sciences Yu. A. Yuzvenko spoke on ceramic flux for welding. Chief of Welding Department of Khar'kov Turbine Factory, S.I. German on the use of radioelectric welding in carbon dioxide. Candi-

Card 2/3

date of Technical Sciences P.I. Sevbo on new equipment for welding, worked out by the Institute of Electric Welding imeni Ye.O. Paton. Candidate of Technical Sciences V.K. Lebedev (Institute of Electric Welding imeni Ye.O. Paton) on new works on point-welding. Engineer L.V. Zaychik on new welding equipment, worked out by VNIIESO. Vice Director of the Institute of VNII Avtogen, Candidate of Technical Sciences I.A. Antonov on recent achievements in the gas flame treatment of metals. Candidate of Technical Sciences N.F. Kazakov (Chair of Technology of Metals at Moscow Institute of the Meat and Milk Production) on a new method of vacuum diffusion welding.

Card 3/3

S/125/60/000/008/005/012
A161/A029

AUTHORS: Lebedev, V.K.; Yavorskiy, Yu.D.

TITLE: Using Similarity Criteria for Selection of Resistance Welding Process Parameters

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 8, pp. 37 - 44

TEXT: For the first time a physical model of a weld joint had been used by D.S. Balkovets (Ref. 1) in 1952, for checking calculations of electric energy needed for the formation of a spot weld. In the present work, the similarity of electrical, mechanical and heat processes is discussed as a means for determining the resistance welding process parameters for geometrically similar joints from the same material. Formulae are suggested expressing the similarity criteria of electric fields in conductors, of heat propagation and deformation, and eleven parameters are determined: 1) The diameter of the electrode contact surface for spot welding; 2) the pressure of the electrode; 3) the short circuit resistance of the welding machine; 4) the welding current frequency; 5) the voltage on parts being joined; 6) the welding time; 7) the welding current; 8) the welding current density; 9) the speed of fusion (for seam welding as well as spot

Card 1/2

Using Similarity Criteria for Selection of Resistance Welding Process Parameters

welding); 10) allowances for fusion and upsetting, and 11) the mass of the welding machine mobile parts. Tests have been carried out with spot welding of sheets and crossed rods, resistance butt and flash welding, and the conclusion was drawn that the suggested method is practically applicable and that it will reduce the amount of experimental work. The available equipment may be employed for determining the parameters of new welding machines. There are 4 figures and 7 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN UkrSSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Paton of the Academy of Sciences of the Ukrainskaya SSR)

SUBMITTED: March 28, 1960

LEBEDEV, V.K.

Useful book. ("Thermal processes during resistance welding; collected works of the laboratory of metal welding." Reviewed by V.K.Lebedev). Avtom. svar. 13 no.11:82-84 N '60. (MIRA 13:11)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.
(Electric welding) (Heat--Transmission)

BEL'FOR, Meylikh Gdal-Gershovich; LEBEDEV, Vladimir Konstantinovich; MANDEL'BERG, S.A., nauchnyy red.; BONDAROVSKAYA, G.V., red.; TOKER, A.M., tekhn. red.

[Equipment for electric arc and electric slag welding and hard facing] Oborudovanie dlia elektrodugovoi i elektroshlakovoi svarki i naplavki. Moskva, Vses. uchebno-pedagog. izd-vo Proftekhizdat, 1961. 197 p. (MIRA 15:4)
(Electric welding--Equipment and supplies)

LEBEDEV, V.K.; KORITSKIY, V.A.

Resistance to short-circuiting of a welding transformer with moving coil. Avtom.svar. 14 no.7:21-24 Jl '61. (MIRA 14:7)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN USSR.
(Electric welding--Equipment and supplies)

LEBEDEV, V.K.; KORITSKIY, V.A.

Transformer for measuring secondary currents of resistance welding machines. Avtom. svar. 15 no.1:23-30 Ja '62. (MIRA 14:12)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona AN USSR.
(Electric welding--Equipment and supplies)

LEBEDEV, V. K.; KORITSKIY, V. A.; SIDORENKO, M. N.; MAKAROV, M. D.

New transformers for manual arc welding. Avtom. svar. 15 no.11:51-55 N '62. (MIRA 15:10)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye. O. Patona AN UkrSSR.

(Electric welding—Equipment and supplies)

L 10299-63 EWP(k)/EWP(q)/EWT(m)/
BDS--AFFTC/ASD--Pf-4--JD/HM
ACCESSION NR: AP3001120 S/0125/63/000/007/0070/0075

AUTHOR: Lebedev, V. K.; Sidorenko, M. N.

62
61

TITLE: Operational peculiarities of rectifiers for manual arc welding 16

SOURCE: Avtomaticheskaya svarka, no. 7, 1963, 70-75

TOPIC TAGS: splashing weld metal, VSS-300 welding rectifier, PSO-300 welding generator

ABSTRACT: Splashing of metal by the welding arc was investigated. With 3-mm electrodes and currents of 80-100 amp, the arc supplied by a VSS-300 3-phase selenium rectifier caused 5 per cent less splashing than that fed by a PSO-300 rotary converter. UONI-13/45 electrodes were used in both cases. This is explained by the fact that in the rectifier case a lesser amount of energy is released at the initial short-circuit. Estimates show that a considerable saving can be effected if the existing rotary converters are replaced by the above rectifiers; the Vilnus plant of electric-welding equipment could save about 500,000 rubles per year. Other experiments showed that a LG-500-Si Siemens-Schuckert welding rectifier causes more splashing than the rotary converter. "Economic estimates were made on our request by Engineer-Economist V. K. Makarov." Orig. art. has: 6 figures and 2 tables.

Card 1/2

YAVORSKIY, Yu.D.; LEBEDEV, V.K.

Conditions of spot welding low-carbon steel. Avtom. svar. 16 no.8:38-46 Ag '63. (MIRA 16:8)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.
(Steel—Welding) (Electric welding)

L 43615-65 EWP(m)/EPF(n)-2/EPR/EPA(s)-2/ EWG(v)/EPA(w)-2/EWP(k)/EWA(c)/EWT(1)/
[illegible]/EWP(b)/T-2/EWA(m)-2/T/EWA(m)-2/EWP(v)/EWP(t) Pd-1/Pe-5/Pf-4/Pi-4/Ps-4/Pt-7/
ACCESSION NR: [illegible]008310 Pu-4/Pab-10 IJP(c) S/0000/64/000/000/0322/0336
MW/JD/HM/JG/GS

AUTHOR: Paton, B.Ye. (Academician); Lebedev, V. K. (Doctor of technical sciences)

TITLE: Magnetohydrodynamic phenomena during electric welding and their applications

SOURCE: AN UkrSSR. Institut elektrosvarki. Novyye problemy svarochnoy tekhniki (New problems in welding technology). Kiev, Izd-vo Tekhnika, 1964, 322-336

TOPIC TAGS: electric welding, welding magnetic field, magnetohydrodynamics, electroslag welding, arc welding

ABSTRACT: During electric welding, the molten metal, liquid slag and high temperature ionized gases are in an electromagnetic field which creates forces in the conductors. These forces, as well as others, affect metal splashing. Magnetohydrodynamic phenomena are observed due to the motion of charged particles and the magnetic field of the arc. A complicated system of electrodynamic forces destroys most of the fluid connections and moves the liquid metal over the surface of the melted parts. The investigation of magnetohydrodynamic phenomena during welding opens new possibilities for creating higher welding speeds, improving weld quality and reducing the consumption of electrical energy. In some cases this is done by limiting the electrodynamic forces.

Card 1/4

The volumetric forces may be created and adjusted in three ways: first, by welding in a magnetic field made by an electromagnet; secondly, by selecting required characteristics of the source of current, and finally, by periodic strengthening of electrodynamic forces using a pulsed increase in the welding current. The present paper considers placing the welding arc in a magnetic field perpendicular to the arc and magnetic field intensity vector. A rotating conical arc is used for welding annular joints of small diameter, simplifying the welding process. A running arc was proposed in 1959 by VNIIESO. The periodic heating of the metal to boiling by the arc and the free access of air into the relatively large gap between the pipes are favorable for the formation of refractory oxides, which are removed with difficulty from the joint during shrinkage. The methods of magnetic control allow one to solve the problem of arc shifting between two electrodes at equal distances, at a certain speed needed for welding the parts during one pass. Welding may also be done by a DC arc controlled by an alternating magnetic field. Such arcs allow one to adjust the heat density of the arc flow on the surface of the part over a wide range. A welding bath placed in a transverse magnetic field improves formation of the weld joint and increases the welding speed. A transverse magnetic field was first used by H. Gunter with a frequency of 100 cps, the magnetic

flow coinciding with the phase of the welding current. A magnetic field can apparently be used for preventing flowing out of the liquid metal from the welding bath through the gaps between parts. It may be assumed that the transverse magnetic field facilitates the formation of weld joints in different positions. The investigation of volumetric forces during three-phase welding with two arcs in a common bath is of special interest. Good joints are obtained when the voltage between the electrodes is $\sqrt{3}$ times the voltage between the electrode and part. Moreover, the order of investigation of the potentials of the electrode and part must be such that terminal A of the phase indicator is connected to the first electrode, terminal B — to the part, and terminal C — to the second electrode of the phase indicator disk rotating counter-clockwise. The arc pressure against the melted metal in the bath is a result of electrodynamic forces. It may be assumed that a transverse magnetic field is effective with twin arc welding. Almost the same system of forces acts on the metal during electroslag welding as during arc welding. Intensive mixing of the molten metal is advisable when using electroslag welding. In the future, the greatest possibilities exist when rectifiers create constant current components flowing through the molten metal bath. Impulse control is created by shifting the electrode metal during welding. Electrodynamic forces are increased for the transfer of fine drops. This is done by a special device which lowers the minimum welding current several fold. Orig. art. has: 10 figures and 2 formulas.

L 43615-65
ACCESSION NR: AT5008310

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Electric Welding Institute, AN UkrSSR)

SUBMITTED: 05Nov64 ENCL: 00 SUB CODE: IE, EM

NO REF SOV: 009 OTHER: 001

Card 4/4 cc

KUCHUK-YATSENKO, Sergey Ivanovich; LEBEDEV, Vladimir Konstantinovich; FURER, P.Ya., red.

[Resistance butt welding with a continuous flashing action] Kontaktnaia stykovaia svarka nepreryvnym oplavleniem. Kiev, Naukova dumka, 1965. 137 p. (MIRA 18:4)

1. Chlen-korrespondent AN Ukr.SSR (for Lebedev).

LEBEDEV, V.K.; ZARUBA, I.I.; SIDORENKO, M.N.

Improving the electric current supply for hand arc welding.
Avtom.svar. 18 no.1:1-5 Ja '65. (MIRA 18:3)

1. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.

L 09430-67 EWT(d)/EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l) JD/IM
ACC NR: AP6032497 SOURCE CODE: UR/0413/66/000/017/0049/0050

INVENTOR: Lebedev, V. K.; Potap'yevskiy, A. G.; Podola, N. V.; Sheyko, P. P.; Deyneko, M. P.; Grodetskiy, Yu. S.

ORG: none

TITLE: Rectifying device for pulsation arc welding. Class 21, No. 185425 [announced by Institute of Electrical Welding im. Ye. O. Paton (Institut elektro-svarki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 17, 1966, 49-50

TOPIC TAGS: arc welding, pulse welding, consumable electrode welding, welding electrode, pulse shaper, transformer, electric capacitor, resistor, welding rectifier, rectifier

ABSTRACT: An Author Certificate has been issued describing a rectifying device for consumable-electrode pulsation welding, containing a rectifier with a choke foil in the rectified current circuit connected in parallel to the rectifying pulse-shaping unit, powered from the power supply system through a transformer and

Card 1/3 UDC: 621.314.632:621.791.75

an auxiliary rectifier. To improve the quality of welding and for controlling the pulse-shaping unit, a voltage feedback circuit is employed for the welding arc, using a peak transformer; the primary winding of the transformer is connected in parallel to the welding arc, while the secondary winding is connected to a slave multivibrator with a thyratron at the output. The pulse-shaping unit consists of a screw connected variable resistor and capacitor which, in turn, are connected in parallel to the auxiliary rectifier. A switching device circuit, such as an ignition, a variable discharge choke coil, and a resistor are connected with the pulse shaping unit (see Fig. 1). Orig. art. has: 1 figure. [Translation]

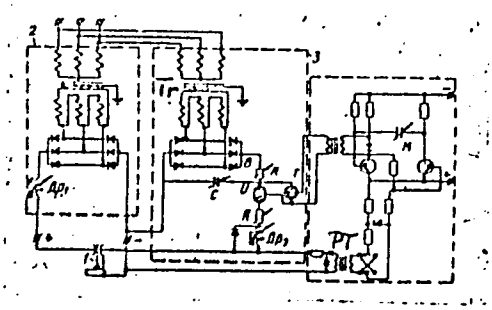


Fig. 1. Rectifying device for pulse arc welding. 1--Consumable electrode; 2--rectifier; Dr_1--choke coil; 3--pulse shaping unit; Tr--transformer of power-supply unit; B--auxiliary rectifier; PT--peak transformer; M--slave multivibrator; T--thyratron; R--controlled resistors; C--capaci-

L 09430-67
ACC NR: AP6032497

tor; I--ignition; Dr_2--variable discharge choke coil.

SUB CODE: 13/ SUBM DATE: 11Jul63/

ard 3/3 LC

ACC NR: AP6021796 (A) SOURCE CODE: UR/0413/66/000/012/0060/0061

INVENTORS: Lebedev, V. K.; Podola, N. V.; Masalov, Yu. A.

ORG: none

TITLE: A device for contact spot microwelding. Class 21, No. 182806 [announced by Institute of Electric Welding im. Ye. O. Paton (Institut elektrosvarki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 60-61

TOPIC TAGS: welding, spot welding, welding technology, welding equipment

ABSTRACT: This Author Certificate presents a device for contact spot microwelding produced on welding workbenches by gang feeding. The device contains a variable power rectifier working in a periodic pulse regime, a control unit for timing and spacing the pulse of the welding current, provided with a pulse counter containing several outlets, a voltage stabilizer of the power rectifier, and a control unit for the welding transformer of each bench, containing a tube and a pedal contact. To improve the quality of welded joints by a separate regulation of the welding current pulse form, the control unit of the welding transformer carries a circuit with diodes, which produces a signal for switching in the tube at the moment when the work period of the power rectifier and the moment of receiving the power pulse from the pulse counter coincide with the moment for depressing the pedal for actuating the bench. A switch connected to one of the pulse counter outlets is provided, and the welding transformer inductance can also be controlled.

Card 1/1 SUB CODE: EC/ SUBM DATE: 22Mar65 UDC: 621.791.763.1.037.62-523.8

ACC NR: AP7001398 (A) SOURCE CODE: UR/0413/66/000/021/0074/0074

INVENTOR: Lebedev, V. K.; Yavorskiy, Yu. D.; Shcheglov, V. D.; Lozovskiy, V. P.; Novlyan, G. A.

ORG: none

TITLE: A method of spot or seam welding of laminated structures. Class 21, No. 187899 [announced by the Electric Welding Institute im. Ye. O. Paton (Institut electrosvarki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 21, 1966, 74

TOPIC TAGS: laminated metal structure, honeycomb structure, structure spot welding, structure seam welding, laminated material, spot welding

ABSTRACT: This Author Certificate introduces a method of spot or seam welding laminated, predominantly honeycomb, structures with the use of a current-conducting

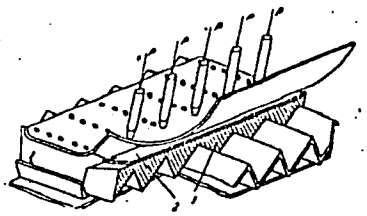


Fig. 1. Spots welding method

1 - Insert; 2 - insulation.

Card 1/2

UDC: 621.791.763-419